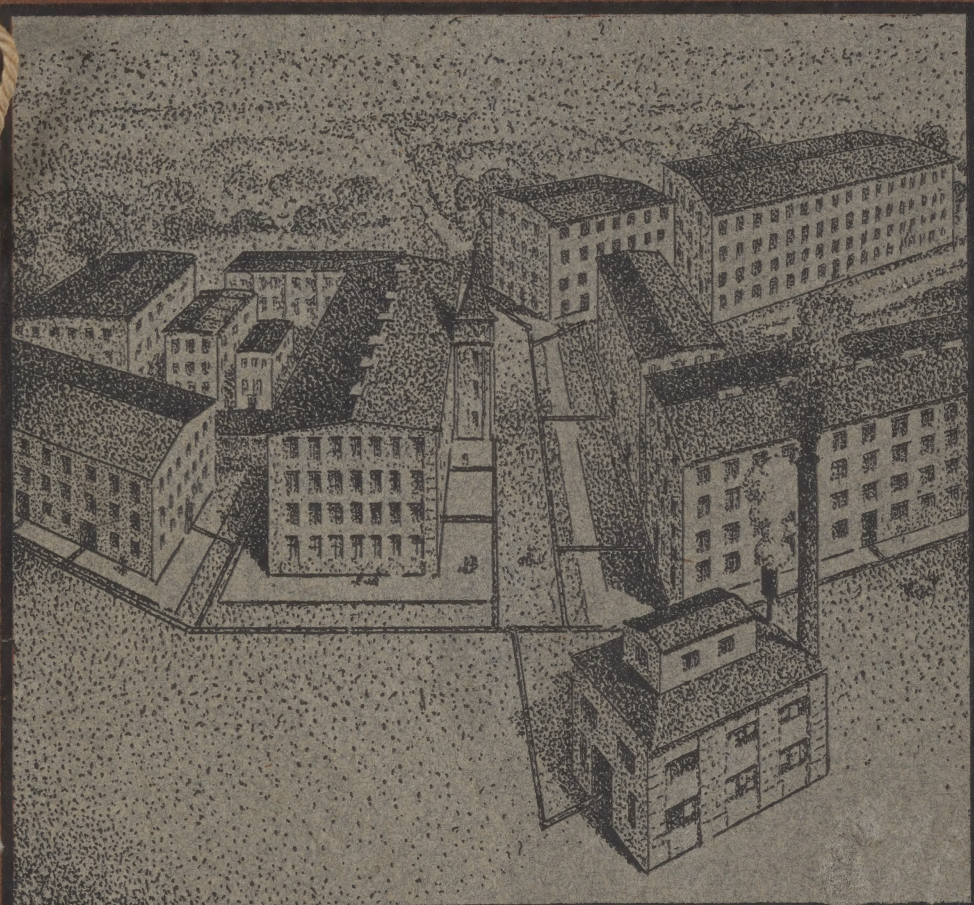
THE EVANS-ALMIRALL SYSTEM OF HOT WATER HEATING

Forced Circulation — Exhaust Steam Utilized



EVANS ALMIRALL & COMPANY

The Evans-Almirall System of

Hot Water Heating

Forced Circulation — Exhaust Steam Utilized

Patented 1893 and 1897

Designers, Engineers and Contractors

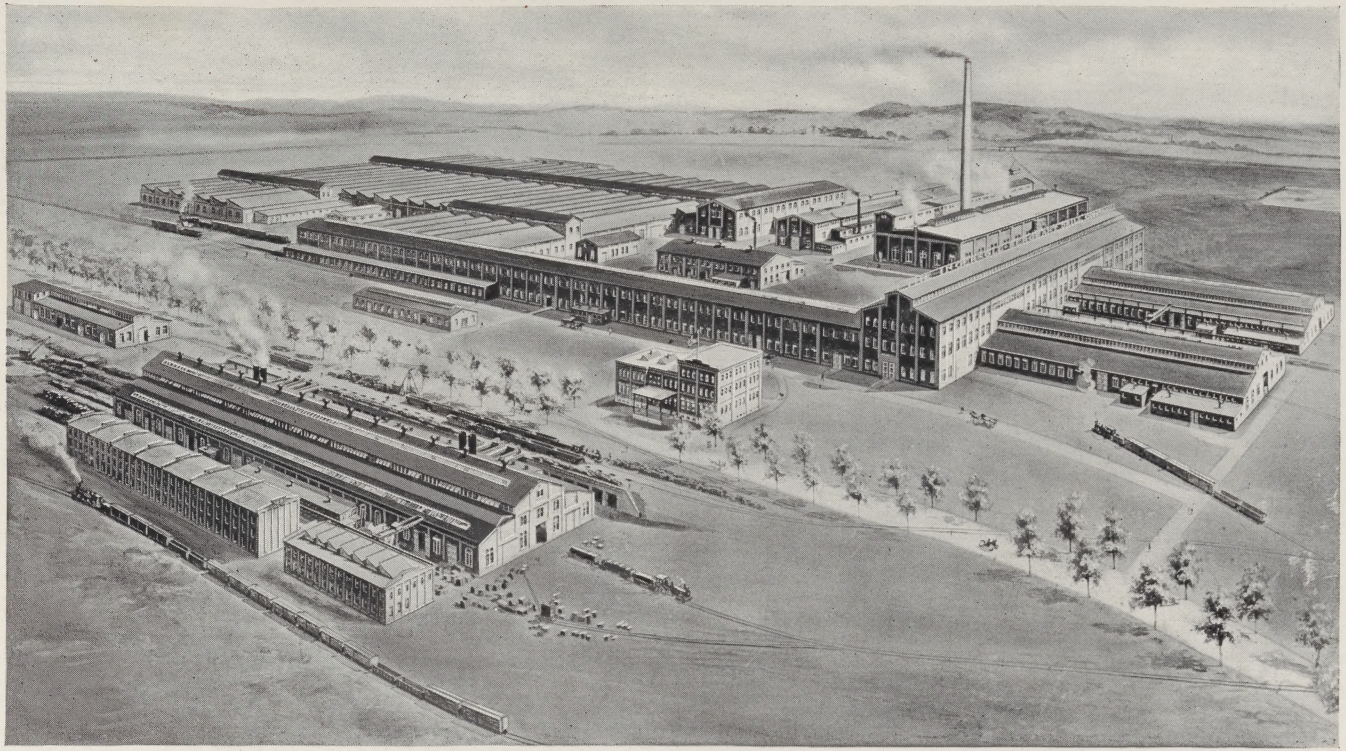
For Heating, Ventilating and Power Plants, Factories, Railroad Shops, Public Institutions, College Buildings, Apartment Houses and Central Station Plants.

EVANS, ALMIRALL & CO.

Main Office: 281 Water Street, New York

Chicago
Monadnock Bldg.

Washington
1413 G St., N. W.



Ingersoll Sargent Drill Co., Phillipsburg, N. J. Heated by Evans-Almirall System.

Evans Almirall & Co.

FOREWORD

THE following pages are intended to describe and set forth in a clear, concise manner the manifold advantages and economies of the EVANS-ALMIRALL System of Forced Circulation of Hot Water, heated by Exhaust Steam, for the warming of buildings.

It is not a catalog in the generally accepted meaning of the word, as no prices, sizes, dimensions, etc., are given —nor can they be given where each installation of our apparatus is a separate piece of work, requiring study and design to obtain the ratios and proportions of parts to meet the given conditions.

The subject of artificial heating of buildings—its development, application and cost—is a large one, and we will not attempt to encompass it between the pages of this little book. But, so universal is its application, so closely interwoven is it with our Commercial, Social and Educational life, that we feel sure a clearly set forth exposition of that system of heating, which secures the most comfort, the largest returns and the greatest physical economy, will meet with favor.

We have made the language used simple in character —easily understood by all—so that one unacquainted with technical matters and terms may not be fearful of approaching and readily grasping the essence of the subject. This is not saying, however, that the application of principles in the EVANS-ALMIRALL System is not based on high technical grounds; it is so based, and those who could command the best technical skill and experience for private investigation, were the first to adopt it, as evidenced by the list of our installations. We only say the subject is reducable to simple terms for general understanding and this we have done. For those who desire to go deeply into the technical aspect, we shall be glad to take

Weissinger-Gaulbert Apartment House, Louisville, Ky. Heated by Evans-Almirall System—McDonald & Sheblessy, Archts.

up any given case from a purely Engineering point of view.

We particularly call your attention to the absence in the following pages of any claim to mere novelty, as such, for the EVANS-ALMIRALL System. Novelties cannot stand the test of time. We were the originators in the field of HOT WATER HEATING BY FORCED CIRCULATION and the essential principles of our system still remain the same, but developed by sixteen years of actual installations and perfected by constant improvement of detail.

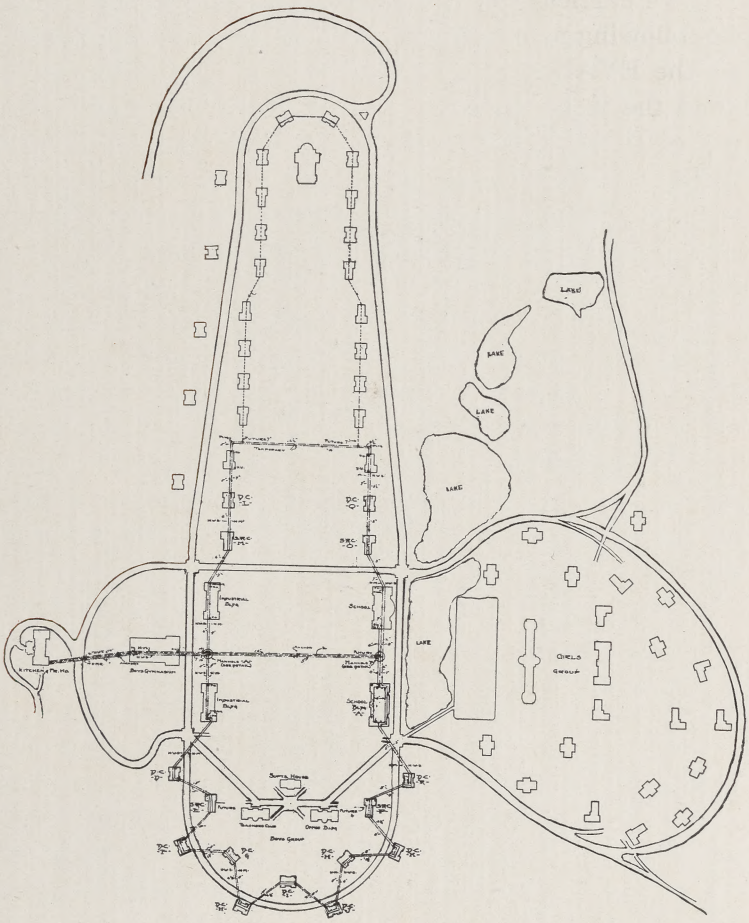
We ask you, especially, to note how radically different our system is from those steam systems having delicately adjusted parts, widely scattered and easily put out of order and upon which every economy of operation is entirely dependent. Disorders or mis-adjustments of such systems do not interfere with their function of heating—*only their economy.* And such disorders are generally neglected—quite generally.

Whoever troubles to investigate an entire plant while the amount of heat is sufficient?

Which one of you takes this very unusual interest?

Note that the EVANS-ALMIRALL System is not dependent upon mechanism, attachments or adjustments of fine parts, for its great economy of operation. Any disorders or mis-adjustments developed from any cause whatever but serve to call your attention to their existence by a diminished degree of heat. In a word, *heating,* not economy, is interrupted by any mis-adjustment. Result—the same economy of operation five, ten or fifteen years after installation as the first year. Bearing this in mind you will learn that our claimed economy is not simply an apparent, a "pencil-and-paper," or a "may-be" economy. It is an *actual*—year in and year out—*coal pile* economy.

We call your attention to the application of our



New York Juvenile Asylum, Dobbs Ferry, Y. Y.—York & Sawyer, Archts.
Heated by Evans-Almirall System.

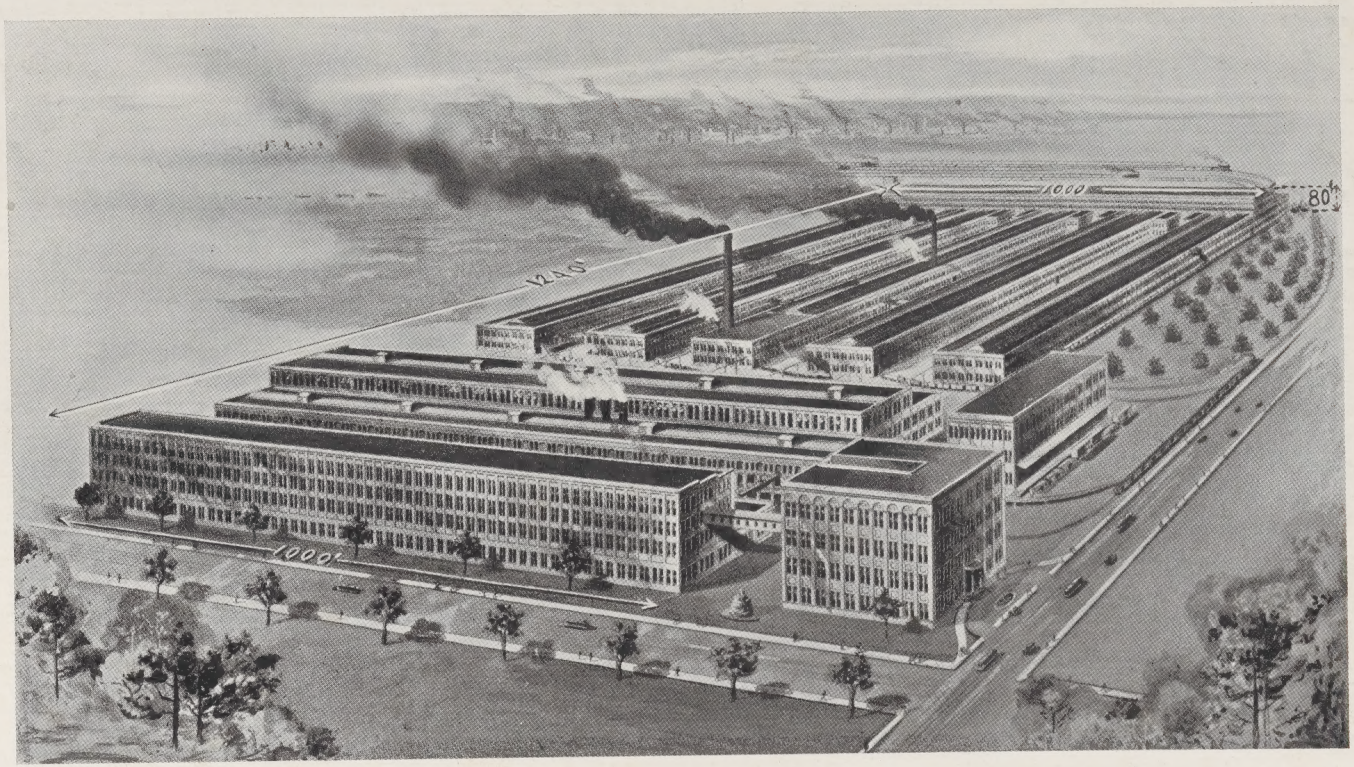
system to Central Station or City and Town Heating; School and Institution Heating and Ventilation; the utilization for heating purposes of waste heat from gas and other internal combustion engines, etc., all of which have special departments in our firm. Inserts of leaflets covering these subjects will be issued from time to time and we should be pleased to have your name on our list.

You may be losing money through a badly designed or wasteful heating system. We can probably reduce your coal bills materially or enable you to heat additional buildings without increasing your boiler capacity.

We go anywhere for business and should be pleased to have one of our representatives call upon you if you are interested and will but let us know.

With these few introductory words, we are pleased to place this little book in your hands.

We want you to read it—read it through—and if it stimulates your interest in the possibilities to be derived from the adoption of our method of heating, in *economy of operation, ease of management* and *eveness of temperature,* we shall be very glad, indeed, to take up with you in detail, your particular Problem in Heating.



New Allis-Chalmers Works, West Allis, Milwaukee.

Heated by Evans-Almirall System.

Evans Almirall & Co.

DESCRIPTION OF SYSTEM

HOT water is used as a heating medium and is circulated through a system of supply and return mains connecting by risers with the heating surface, either direct radiators, coils or indirect hot blast heaters.

First—PUMP.

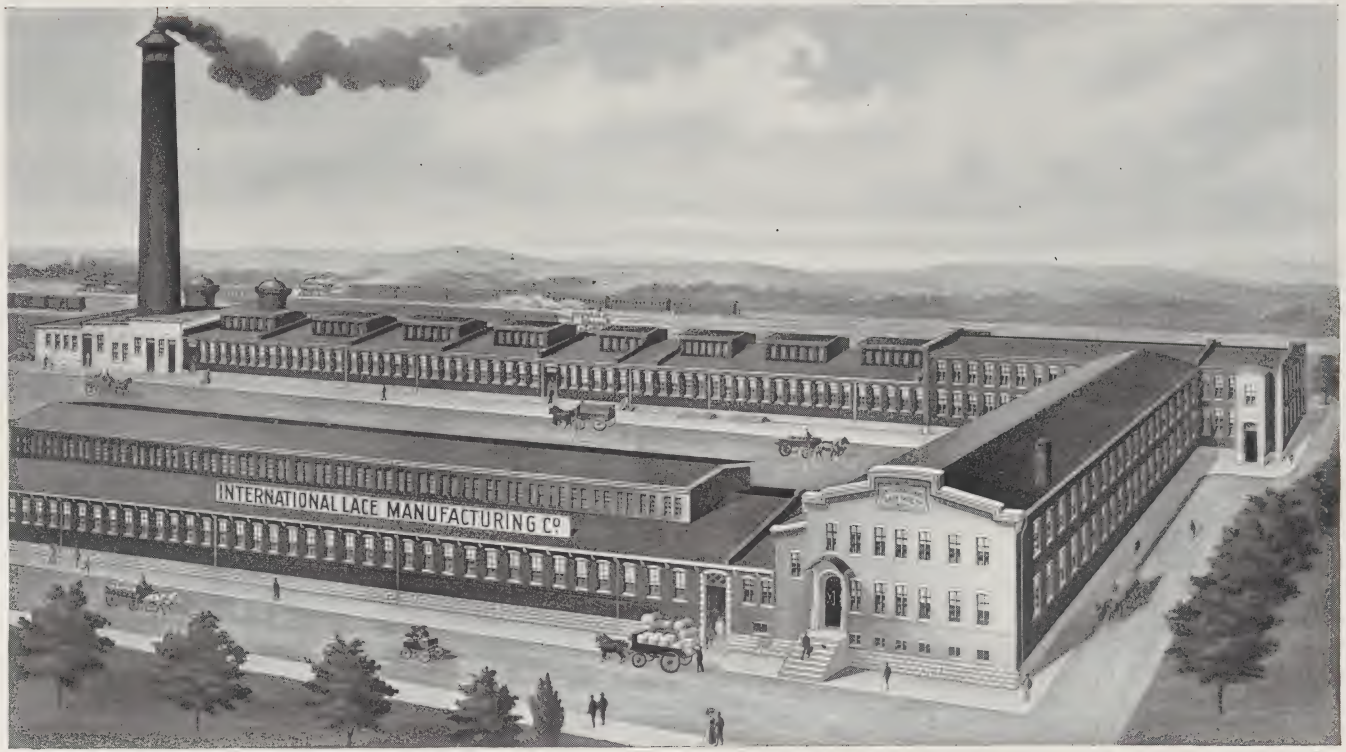
In order to accelerate the natural circulation due to the difference in temperature of the water in the supply and returns mains, there is a centrifugal pump in the circuit. This pump insures, in all parts of the system, a positive and rapid circulation under perfect control and it may be driven, either by direct connected engine, steam turbine, electric motor, or by belt from a line shaft.

Second—EXHAUST HEATER.

This is the name of the heater through which the exhaust from the engine passes on its way to the atmosphere, to the condenser or to the closed type of feed water heater. The arrangement of the tubes is such that the exhaust steam has a free passage through them and thence to the atmosphere (or, when running condensing, to the condenser) so that absolutely *no back pressure* can be placed on the engine.

There is *no connection whatever* between the water and steam spaces. The water is circulated *around* the tubes where it absorbs the latent heat of evaporation in the exhaust steam and condenses it. The condensed steam is returned to an open feed water heater or tank, and used as feed water for the boiler.

In a condensing plant this exhaust heater may be placed between the engine and the condenser, thus absorbing the latent heat of the steam on its way to the condenser. In this manner the exhaust steam may be utilized and a vacuum maintained on the engine.



International Lace Mfg. Co., Gouverneur, N. Y.

Heated by Evans-Almirall System.

Third—AUXILIARY LIVE STEAM HEATER.

In addition to the exhaust heater, there is a live steam or auxiliary heater which is similar in construction to the exhaust heater. This is *only* used when the available exhaust steam is insufficient to warm the water to the required temperature. When this auxiliary heater is used, live steam is taken direct from the boiler and passed through the tubes of the heater where its latent heat is given up to the water which is circulated around the tubes. The condensation from this auxiliary heater is returned directly to the boiler, clean, and at a temperature corresponding to the pressure; by gravity when the heater can be placed high enough, and other times by return trap or pump.

Fourth— CIRCUIT.

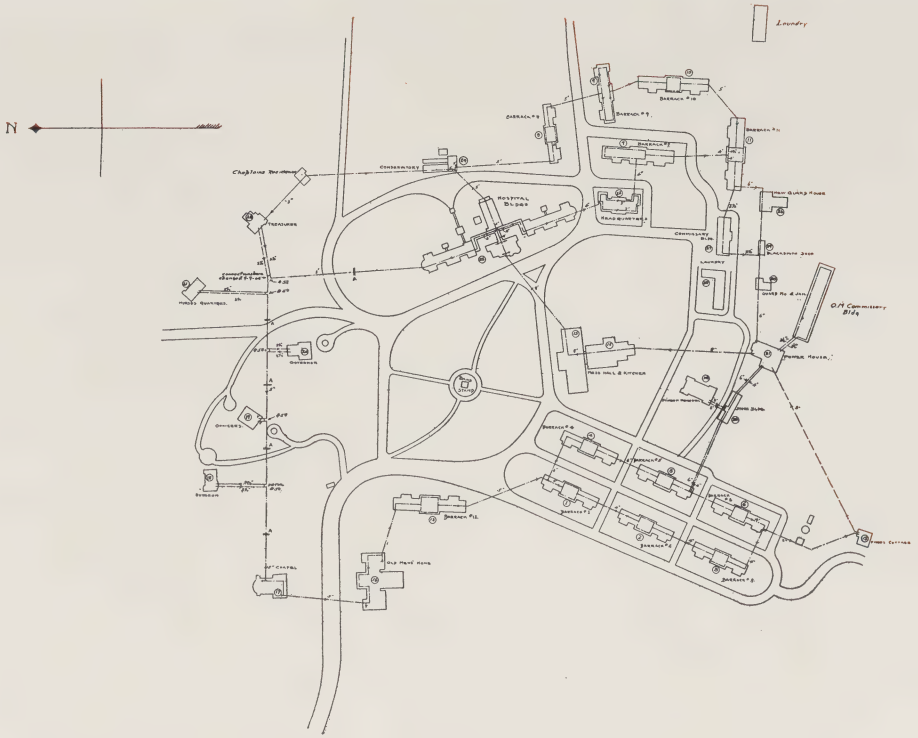
The above then being the essential features of the system, its operation is as follows:

Starting from the pump, the water travels first through the exhaust heater, absorbing the latent heat from the exhaust steam and condensing it.

From the exhaust heater, the water goes to the auxiliary heater where, when necessary, additional heat may be supplied by live steam. Pipe connections are so made and valved that the water may pass either through or around each heater.

The water is then circulated through the flow mains to one or more buildings and the various coils or radiators. The returns from these are joined into one pipe which connects with the suction end of the centrifugal pump. This completes the circuit which is a *closed* one, hence the *static head* of water on the *suction* side of the pump is *balanced* by an *equal static head* on the *delivery* side of the pump.

The *only* work required of the pump is to *overcome the friction* due to the velocity of the moving water in the system of piping.



National Home for Disabled Volunteer Soldiers, Marion Ind.
Heated by Evans-Almirall System.

The *same water* is used *continuously,* being circulated over and over again, and gives up *just the amount* of heat required to keep the buildings at the *proper temperature.*

ADVANTAGES OF THIS SYSTEM

THE advantages to be gained by the use of any one particular system constitute the most important consideration to be kept in mind when investigating its merits. In reading the foregoing description of the EVANS-ALMIRALL system and its operation, a number of points of superiority are plainly evident and which combined, we claim, no other existing system can equal.

First—BACK PRESSURE.

The EVANS-ALMIRALL system utilizes the exhaust steam of non-condensing engines causing *absolutely no back pressure* on the engines, *under any conditions* of operation.

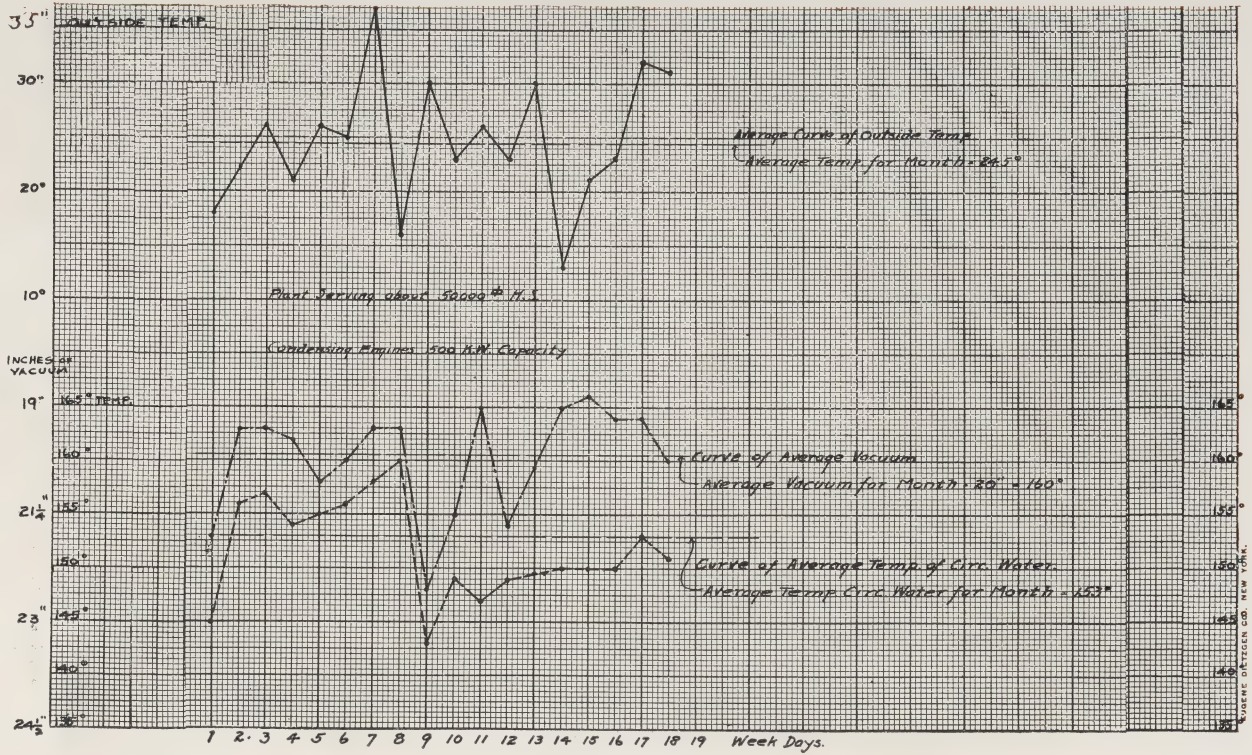
This is evidenced by *indicator cards* from the engine *showing* the *same atmospheric line* with and without the heating system in operation and this is a claim that cannot be substantiated for any other system.

The exhaust pipe is always open free to the atmosphere; *no back pressure valve* is used.

Second—ENGINES RUN CONDENSING.

The EVANS-ALMIRALL system stands alone in this point—that it absorbs and utilizes the latent heat in exhaust steam on its way to the condenser. It is the *only* system by which this heat *otherwise thrown away,* in the condenser overflow, can be utilized.

In all systems the heating surface is proportioned to obtain the *guaranteed* temperature with *minimum* temperature outdoors and *all* surface in use. *Minimum*


35"
OUT SIDE TEMP.
30"
20°
10°
Average Curve of Outside Temp.
Average Temp for Month - 26.5°
Plant Serving about 50000 # H.S.
Condensing Engines 500 K.W. Capacity
INCHES OF VACUUM
19"
165° TEMP.
160°
21 1/4"
155°
150°
23"
145°
140°
24 1/2"
135°
Curve of Average Vacuum
Average Vacuum for Month - 20" - 160°
Curve of Average Temp of Circ. Water.
Average Temp Circ Water for Month - 153°
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 Week Days.
EUGENE DIETZGEN CO. NEW YORK.

Curve Sheet.

weather occurs for a *few days only* during each winter, therefore, during most of the heating season, in order to avoid waste and overheating, either the radiators must be closed off, or the *temperature* of the *heating medium reduced.*

Experience shows that the radiation will *not* be closed off, but *windows opened* to allow the escape of excess heat, and with the *steam system* it is *impossible* to *reduce* the *temperature* of the *heating medium.*

The EVANS-ALMIRALL system is the *only one* in which it is possible to *reduce* and proportion the *temperature* of the *circulating water* to *suit varying weather conditions.*

The temperature of the circulating water may be maintained within a few degrees of the temperature of the exhaust steam passing through the exhaust heater on its way to the condenser. The temperature of the exhaust steam depends upon the degree of vacuum and the *maximum vacuum* can be *maintained* which will *just give* the *necessary temperature* to the circulating water.

The curves shown in the cut opposite illustrate actual operating results obtained with the EVANS-ALMIRALL system in a plant utilizing exhaust steam from 500 K. W. condensing engines and serving about 50,000 square feet of heating surface. The curves show for the week days of the month the average outdoor temperature, average temperature of the circulating water and average vacuum (both in degrees F. and inches of mercury) maintained on the engines.

Third—ECONOMICAL DISTRIBUTION.

It is frequently found that in steam heating systems, even in moderate weather, the *amount* of exhaust steam available is *not sufficient* to entirely *fill* all the *main* and *connecting pipes* and reach the radiation farthest from the power house.

This requires the *addition* of *live steam* to fill the

South High School, Worcester, Mass. Heated and Ventilated by Evans-Almirall System—Frost, Briggs & Chamberlain, Archts.

system and obtain steam at the extreme ends, although this live steam would not actually be required for heating purposes were it possible to evenly distribute the smaller amount of available exhaust steam throughout the entire system. In steam systems, pressure reducing valves are *always* used and they *automatically* open to admit live steam, as soon as the exhaust steam fails to completely fill the piping system.

This occurs at times, due to the variable load on the engine. When the load is light, the exhaust steam from the engine will not fill the heating system and live steam is introduced through the reducing valve simply to maintain the pressure constant. When the engine load is heavy and more exhaust steam is given off than is required to fill the system, the back pressure valve opens and allows the excess steam to be wasted to the atmosphere.

In the EVANS-ALMIRALL system, the conditions are entirely different. With the large exhaust heater *all* the exhaust steam *independent* of *variation* of engine load *can be condensed* up to the limit of the capacity of the heater. In this manner, the *heat* of the *surplus exhaust steam* from the engine during the period of heavy load, *is stored* in the water. During the period of *light load* this *surplus heat* is *given off*, the temperature of the water being slowly lowered until the heavy load returns again and restores the water to its normal temperature once more. *No live steam* is used during this period.

If the amount of exhaust steam continuously available is *small*, it warms the water to *some* temperature and the heat from even this little exhaust steam is *evenly distributed* throughout the *entire system.*

Live steam is *not* automatically turned, into the system until a higher temperature of water is required throughout the entire plant for satisfactory warming of the buildings.

Louisville & Nashville Office Building, Louisville, Ky.
Heated by Evans-Almirall System.

Sundays, holidays and nights, when no exhaust steam is available, and the heating must be done entirely with live steam, the same conditions prevail. A *small amount* of live steam can be *evenly* distributed throughout the entire *water* system, whereas with a *steam* plant, enough live steam must be furnished to *entirely fill* the system and reach the farthest radiators.

Fourth—LIVE STEAM.

When *all* the exhaust steam is used, should it prove insufficient, *then and not until then* is live steam used. Live steam may then be turned into the auxiliary heater either by hand or automatically in such quantity only as may be required to obtain the desired temperature in the circulating water.

Because it is possible to govern *exactly* the temperature of water required, *less* live steam will be used than where it is necessary to maintain, with a steam system, 212 degrees throughout the entire plant. *Exhaust* and *live steam* are used in *independent heaters* and *never mixed.*

Fifth—REGULATION.

The EVANS-ALMIRALL system is *easiest* to *regulate* because the engineer in the power house has perfect control of the temperature in the entire plant. The temperature of the water can be raised or lowered at will, to suit the outside temperature and so maintains an even degree of heat throughout the system. When it is desired to shut off the heat in any room, the operation of one valve only is necessary and even then, the *absolute closing* of the valve is *not essential.* In steam systems, unless the controlling valve is closed tightly, water fills the radiators and "hammer" results.

Sixth—SIMPLICITY.

In some so-called "vacuum" systems, an attempt is made to avoid "water hammer" by the application of "automatic" devices at each radiator or coil. These

Marion, Indiana.

"automatic" devices, however, must receive constant and careful attention or they will not continue "automatic." Then trouble and failure follow. This entails a *double expense* for attention and repairs.

With the *water system, no* such devices are required or used, as no noise or "water hammer" is possible.

Seventh—OPERATION CENTRALIZED.

Any number of buildings may be heated from a central plant. By means of the forced circulation, the mains can be carried any distance either above or under ground, from building to building and thus the heat generated at a central point distributed evenly wherever desired.

Eighth—COST OF OPERATION.

In *any* heating system, *power is required* to move the heat (in whatever form) from the power plant to the radiating surface. The EVANS-ALMIRALL system requires *less* power for this purpose than any other system.

In *steam heating,* to produce circulation, a *difference* in *pressure* is required between two points. Either *back pressure* must be placed on the engine, or a *vacuum pump* must be connected to the return pipe to reduce the pressure and pull the steam through the system.

Placing *back pressure* on the engine *reduces* the *available power* and *increases the steam consumption* per horse-power of the engine.

With the vacuum pump *cold water* must be injected into the return pipe at the pump to cool the condensation from the heating surface. This *reduces* the final pressure and *temperature* of the condensed steam. The injection water produces the vacuum and the pump removes the products.

The waste of the cooling water and the cost of running the pump are both chargeable to the heating system. Such a vacuum pump requires *many times* the steam consumption necessary to drive the circulating pump of the EVANS-ALMIRALL system.

Arlington Hotel, Washington, D. C. Heated by Evans-Almirall System.

Ninth—GRADE OF PIPE.

With the EVANS-ALMIRALL system, no attention need be paid to the grade of the flow or return mains. The return mains may go overhead alongside of the supply mains. *Trenches* or conduits in the *basement* of buildings are *unnecessary* and all pipes of the entire system are always in view and accessible.

In any *steam system,* pipes *must* be drained in a given direction and the *returns* kept *below* the *lowest radiation,* requiring trenches and thus hiding the pipes and making them inaccessible.

Tenth—SIZE OF MAIN PIPE.

The *size of pipe* required for the distribution of heat in the EVANS-ALMIRALL system, is much *smaller* than in any steam system of equivalent capacity.

Eleventh—STORAGE AND FREEZING.

Water is 1,700 times as dense as steam at 2 pounds pressure. Every lineal foot of pipe contains by weight 1,700 times as much water as steam.

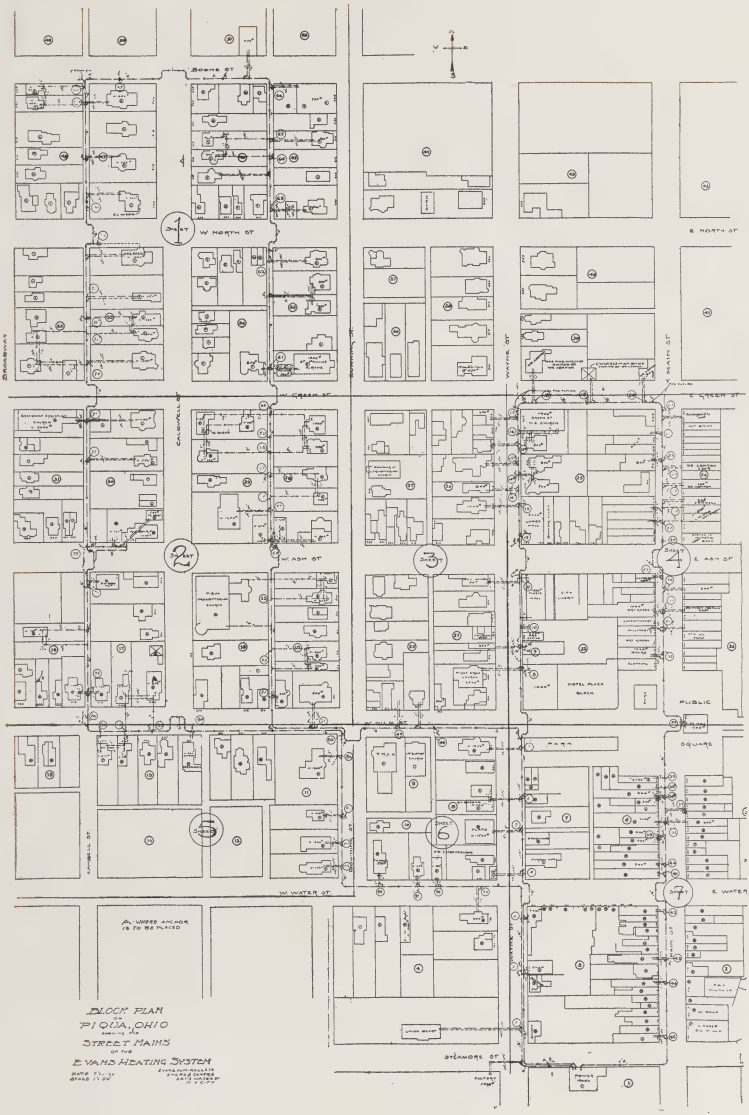
One cubic foot of water *cooled* 20 *degrees* will *give* up *thirty* times as much heat as *one cubic foot of steam* at 2 *pounds pressure* will give up when condensed. This gives a much greater *storage capacity* for the water system and less danger from freezing as more heat is available.

In a water system, if one portion becomes exposed to cold, the cooling of the water produces a change in its specific gravity and sets up a natural circulation to re-establish equilibrium.

Twelfth—ECONOMY.

The most important consideration in the selection of a heating system is its *economical operation.* The EVANS-ALMIRALL system is superior in this particular to *any* other system on the market.

This claim is proven by a careful study of the advantages enumerated above and which are recapitulated as follows:


BOONE ST
W NORTH ST
E NORTH ST
W GREEN ST
E GREEN ST
W ASH ST
E ASH ST
W WATER ST
E WATER ST
SYCAMORE ST
MAIN
PUBLIC
SQUARE
HOTEL PLAZA
BLOCK PLAN
OF
PIQUA, OHIO
SHOWING THE
STREET MAINS
OF THE
EVANS HEATING SYSTEM

Piqua, Ohio.

Evans Almirall & Co.

SUMMARY OF ADVANTAGES

FIRST: Exhaust steam used without back pressure. *No back pressure valve* installed.

SECOND: *Exhaust steam* used *from condensing engines* and vacuum maintained.

THIRD: Exhaust and Auxiliary Heaters connected in series so that *no* live steam is used until *all* the exhaust steam is condensed.

FOURTH: Economical, uniform and *thorough distribution* over the entire system of any amount of exhaust steam:—A *small* amount distributed over an *extended* surface.

FIFTH: *Exact control* of the *temperature* of the heating medium and ability to maintain a *low* temperature throughout the entire system results in a *great saving* of live steam.

SIXTH: An *even* temperature *always* maintained. Buildings not overheated with the resultant loss of heat through open windows.

SEVENTH: *No* "automatic" devices on radiators or coils, means *less* expense for repairs and maintenance. *No* drips and traps, all of which are required with the steam system.

EIGHTH: Any number of buildings heated from a central point.

NINTH: *Less power,* therefore *less cost* for operation required than with any other system.

TENTH: Grade of pipe not essential.

ELEVENTH: Size of distributing mains small.

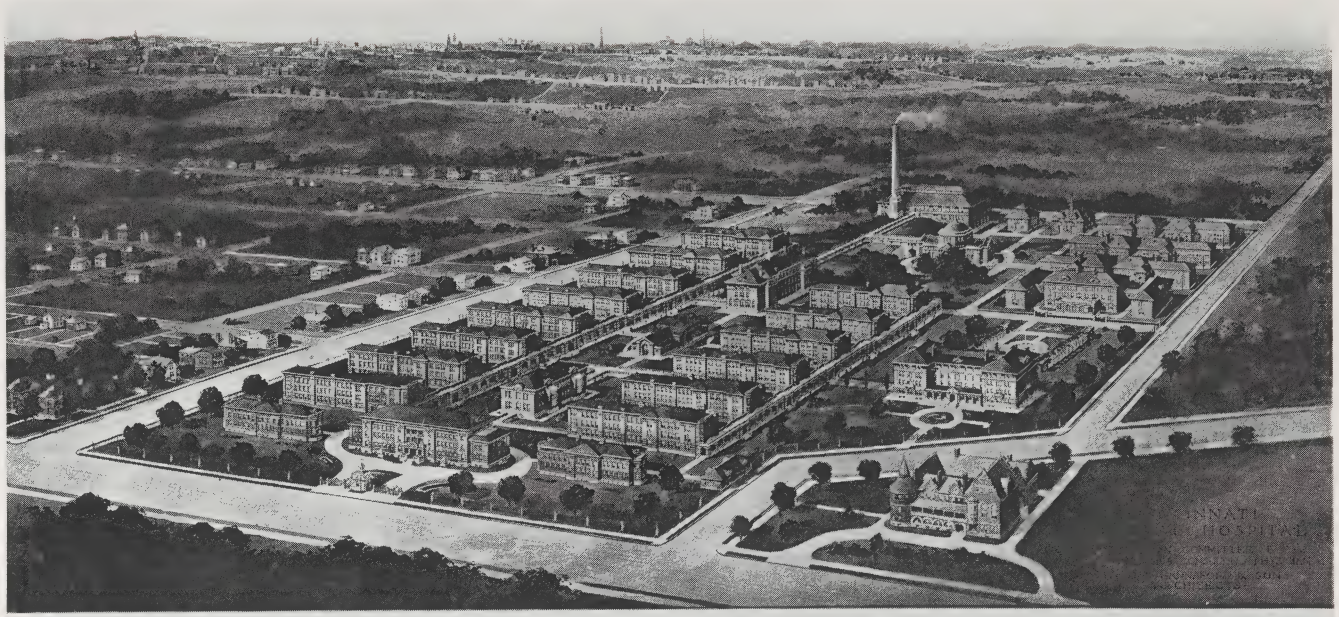
TWELFTH: *Storing* of *surplus heat.* The large body of water in the pipes and radiators stores up the surplus heat to be given up after the engines are shut down.

John Hancock Life InsuranceBuilding,Boston, Mass. — Heated by Evans-Almirall System.
Shepley, Rutan & Coelridge, Architects.

Evans Almirall & Co.

TYPICAL INSTALLATIONS

WEISSINGER-GAULBERT APARTMENT HOUSE, Louisville, Ky.	Hotel,
BOLKENHAYN APARTMENT HOUSE, New York City.	"
ARLINGTON HOTEL, Washington, D. C.	"
WESTMINSTER CHAMBERS, Boston, Mass.	"
HOTEL PHOENIX, Buenos Ayres, S. A.	"
JOHN HANCOCK BUILDING, Boston, Mass.	Office Building,
WARREN CHAMBERS, Boston, Mass.	" "
SLATER BUILDING, Worcester, Mass.	" "
LOUISVILLE & NASHVILLE R. R., Louisville, Ky.	" "
MONTGOMERY, WARD & CO., Chicago, Ill.	Warehouse Building,
N. Y. CENTRAL & HUDSON RIVER R. R. CO., Albany and Troy, N. Y.	Railroad Depot,
N. Y., N. H. & H., SOUTH TERMINAL STATION, Boston, Mass.	" "
DELAWARE, LACKAWANNA & WESTERN R. R., Hoboken, N. J., and Scranton, Pa.	" "
NEW UNION STATION, Birmingham, Ala.	" "
UNION TERMINAL STATION, Mobile, Ala.	" "
DELAWARE, LACKAWANNA & WESTERN R. R., Kingsland, N. J.	Car Shops.
AMERICAN LOCOMOTIVE CO., Dunkirk, N. Y.	" "
WORCESTER CONSOLIDATED ST. R'WAY CO., (Market Street), Worcester, Mass.	" "
HARTFORD ST. RAILWAY (3 Installations), Hartford, Conn.	" "
KNOXVILLE STREET RAILWAY CO., Knoxville, Tenn.	" "
INDIANA UNION TRACTION CO., Anderson, Indiana.	" "
BOSTON & MAINE RAILROAD, Fitchburg, Mass.	" "
NEW YORK JUVENILE ASYLUM (25 Bldgs.), Dobb's Ferry, N. Y.	Institutions,
ESSEX CO. HOSPITAL FOR INSANE (12 Bldgs.), Overbrook, N. J.	"
NATIONAL MILITARY HOME (30 Bldgs.), Marion, Ind.	"
UNITED STATES INDIAN SCHOOL (10 Bldgs.), Fort Totten, N. D.	"
SCRANTON POOR DISTRICT (Hillside Home). Clark's Summit, Pa.	"
ST. MARY'S R. C. TRAINING SCHOOL, Feehansville, Ill.	"
SISTERS OF NOTRE DAME (R. C.), St. Louis, Mo.	"
ST. JOSEPH'S HOME, Troy, N. Y.	"
NEW YORK PARENTAL SCHOOL (6 Bldgs.), Jamaica, Long Island.	"
McKINLEY MANUAL TRAINING SCHOOL, WASHINGTON, D. C.	School Building,



CINCINNATI GENERAL HOSPITAL

CINCINNATI, OHIO.

SAMUEL HANNAFORD & SONS
ARCHITECTS

GEORGE F. WRIGHT
CONSULTING ENGINEER

·HEATED·BY·THE·EVANS·ALMIRALL·HOT·WATER·HEATING·SYSTEM·

Evans Almirall & Co.

SOUTH HIGH SCHOOL, Worcester, Mass.	School Building
NEW HIGH SCHOOL, Brockton, Mass.	" "
PUBLIC SCHOOLS (High, Lincoln, No. 11), Bayonne, N. J.	" "
NEW HIGH SCHOOL, Richmond, Va.	" "
FIRST INTERMEDIATE SCHOOL, Cincinnati, Ohio.	" "
NEW MECHANIC ARTS HIGH SCHOOL, Springfield, Mass.	" "
UNIVERSITY OF NORTH CAROLINA, Chapel Hill, N. C.	10 College Buildings
TRINITY COLLEGE, Durham, N. C.	4 " "
SHAW UNIVERSITY, Raleigh, N. C.	4 " "
WASHINGTON & LEE UNIVERSITY, Lexington, Va.	7 " "
LITTLETON FEMALE ACADEMY, Littleton, N. C.	2 " "
SOUTH CAROLINA MILITARY ACADEMY, Charleston, S. C.	3 " "
OTTERBEIN UNIVERSITY, Westerville, Ohio.	6 " "
AMERICAN BAPTIST HOME MISSION SOC., Washington, D. C.	Hospital (4 Buildings)
MAINE EYE & EAR INFIRMARY, Portland, Me.	" "
CINCINNATI GENERAL HOSPITAL, Cincinnati, Ohio.	" (35 Bldgs.)
TORONTO GENERAL HOSPITAL, Toronto, Canada.	" (12 Bldgs.)
39TH STREET FERRY, Manhattan Terminal, New York City.	Ferry Terminal
STATEN ISLAND FERRY, Manhattan Terminal, New York City.	" "
GIRARD ESTATE, South Philadelphia, Pa.	Central Station Heating (400 houses)
MIAMI LIGHT, HEAT & POWER CO., Piqua, Ohio.	" " "
MARION LIGHT, HEAT & POWER CO., Marion, Ind.	" " "
RED OAK ELECTRIC COMPANY, Red Oak, Iowa.	" " "
ALBERT LEA LIGHT & POWER CO., Albert Lea, Minn.	" " "
JANESVILLE ELECTRIC COMPANY, Janesville, Wis.	" " "
WAUKEGAN ELEC. LIGHT & POWER CO., Waukegan, Ill.	" " "
CITIZENS' ELEC. LIGHT & POWER CO., Centerville, Ia.	" " "
ARTILLERY POST, Fort Sill, Okla.	" " "
U. S. NAVAL TRAINING STATION, North Chicago, Ill.	" " "
FACTORY POWER CO., Oakley, Ohio.	" " "
SUMMIT SILK COMPANY, Summit, N. J.	Silk Mill
HERMAN AUKAM & CO., South River. N. J.	Handkerchief Factory


Size Of Building
Cu Contents
Total Floor Area
Total Sq Ft Of Radn.
Length Of Mains
4 MILES
HEATED BY THE
EVANS-ALMIRALL HOT WATER HEATING SYSTEM
EVANS ALMIRALL & CO
ENGINEERS & CONTRACTORS
NEW YORK
CHICAGO

Evans Almirall & Co.

INTERNATIONAL MANUFACTURING CO., New York City.	Handkerchief Factory	
INTERNATIONAL LACE M'F'G CO., Gouverneur, N. Y.	Lace Curtain Factory	
HOPE MANUFACTURING COMPANY, Phoenix, R. I.	Cotton Factory	
PARKHILL MFG. CO. (Mill-A), Fitchburg, Mass.	"	"
GRANT MILLS, Fitchburg, Mass.	"	"
ROYAL WEAVING CO., Pawtucket, R. I.	"	"
LORRAINE MFG. CO., Pawtucket, R. I.	"	"
RHINELANDER PAPER COMPANY, Rhinelander, Wis.	Paper and Pulp Mill	
UNION MALLEABLE IRON WORKS, East Moline, Ill.	Steel and Iron Plants	
WILMINGTON MALLEABLE IRON WORKS, Wilmington, Del.	" " " "	
CAMBRIA STEEL CO., Johnstown, Pa.	" " " "	
LACKAWANNA STEEL CO. (2 Installations), Buffalo, N. Y.	" " " "	
INTER-OCEAN STEEL CO., Chicago Heights, Ill.	" " " "	
ILLINOIS STEEL COMPANY, South Chicago, Ill.	Machine Shops	
AMERICAN LOCOMOTIVE CO., Dunkirk, N. Y.	"	"
UNITED STATES NAVY YARD, Washington, D. C.	"	"
ALLIS CHALMERS COMPANY, Milwaukee, Wis.	"	" (14 Bldgs.)
BERLIN MACHINE COMPANY, Beloit, Wis	"	" (7 Bldgs.)
MODERN FOUNDRY COMPANY, Cincinnati (Oakley, O.),	"	"
CINCINNATI PLANER COMPANY, Cincinnati (Oakley, O.),	"	"
CINCINNATI MILLING MACHINE CO., Cincinnati, Ohio.	"	"
CINCINNATI BICKFORD TOOL CO., Cincinnati, Ohio.	"	"
TRIUMPH ELECTRIC CO., Cincinnati, Ohio.	"	"
WHITING FOUNDRY EQUIPMENT CO., Harvey, Ill	"	" (6 Bldgs.)
BARBER-COLEMAN COMPANY, Rockford, Ill.	"	"
SULLIVAN MACHINERY CO., Claremont, N. H.	"	" (6 Bldgs.)
FARREL FOUNDRY & MACHINE CO., Ansonia, Conn.	"	" (6 Bldgs.)
NIAGARA MACHINE & TOOL CO., Buffalo, N. Y.	"	"
GOLDIE & McCULLOCH COMPANY, Galt, Ontario.	"	" (3 Bldgs.)
INGERSOLL-RAND DRILL COMPANY, Phillipsburg, N. J.	"	" (14 Bldgs.)
CANADIAN RAND DRILL COMPANY, Sherbrooke, Quebec.	"	" (3 Bldgs.)
WINDSOR MACHINE CO., Windsor, Vt.	"	"

ESSEX COUNTY HOSPITAL FOR THE INSANE

OVERBROOK, N.J.

HEATED AND VENTILATED BY
THE EVANS ALMIRALL SYSTEM OF HOT WATER HEATING

TOTAL CUBIC CONTENTS 5,200,000 CU.FT.
TOTAL FLOOR AREA 16 ACRES
TOTAL RADIATION 275,650 SQ FT
TOTAL MILES OF PIPE-15

HURD AND SUTTON — ARCHITECTS
NEWARK, N.J.
FRANK SUTTON CONS. ENGR.
NEW YORK

3000 FEET FROM POWER HOUSE TO END OF BUILDING NO. 5

Evans Almirall & Co.

GENERAL ELECTRIC CO., Erie, Pa.	Elec. Mfg. Co.
WESTERN ELECTRIC COMPANY, Chicago and Hawthorne, Ill.	" " "
WESTERN ELECTRIC COMPANY, New York City.	" " "
WAGNER ELECTRIC MFG. CO. St. Louis, Mo.	" " "
DEERING HARVESTER WORKS, Chicago, Ill.	Plow Works
DEERE & CO., Moline, Ill.	" " (12 Bldgs.)
EMERSON MANUFACTURING CO., Rockford, Ill.	" " (4 Bldgs.)
ROME BRASS & COPPER CO., Rome, N. Y.	Mfg. Brass Goods
ROME METAL CO., Rome, N. Y.	" " "
WATERBURY BRASS CO., Waterbury, Conn.	" " " (4 Bldgs.)
CHEENEY BIGELOW CO., Springfield, Mass.	" " "
SPRAGUE ELECTRIC ELEVATOR CO., Watsessing, N. J.	Elevator Factory
OTIS ELEVATOR COMPANY, Yonkers, N. Y. and Buffalo, N. Y.	" "
B. F. GOODRICH CO., Akron, Ohio.	Rubber Factory
MECHANICAL RUBBER CO., Cleveland, Ohio.	" "
REPUBLIC RUBBER CO., Youngstown, Ohio.	" "
MATTHIESSEN & HEGELAR ZINC CO., LaSalle, Ill.	Rolling Mill
AMERICAN GRASS PRODUCTS CO., West Superior, Wis., and St. Paul, Minn.	Factory
MIDGLEY MFG. CO., Columbus, Ohio.	"
PFLEGHAR MFG. CO., New Haven, Conn.	"
GLAZIER STOVE WORKS, Chelsea, Michigan.	"
HUNTOON BOTTLING CO., Ellenville, N. Y.	"
CELLULOID CO., Newark, N. J.	" (15 Bldgs.)
NESTLE FOOD COMPANY, Fulton, N. Y.	" (6 Bldgs.)
GOES LITHOGRAPH CO., Chicago, Ill.	"
CAPEWELL HORSE NAIL CO., Hartford, Conn.	"
ATLANTIC SCREW WORKS, Hartford, Conn.	"
PRATT & WHITNEY CO., Hartford, Conn	" (6 Bldgs.)
BURROUGHS ADDING MACHINE CO., Detroit, Mich.	"
STANLEY WORKS, New Britain, Conn.	Hardw'r Mfg. (6 Bldgs.)
RICHARDSON MFG. CO., Newark, N. J.	Jewelry Fcty (2 Bldgs.)
E-M-F COMPANY, Detroit, Mich.	Automobile Factories
PIERCE-ARROW MOTOR CAR CO., Buffalo, N. Y	" "